

ART 34 AMDT

CLAIMS

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1. A composite material comprising colloidal silica-bonded alkaline earth silicate fibres in which any bonding agents or fillers comprise low amounts of aluminium so that the composite material comprises less than 1% by weight aluminium expressed as  $Al_2O_3$ .

10 2. A composite material as claimed in claim 1 in which composite material comprises less than 0.5% by weight by weight of aluminium expressed as  $Al_2O_3$ .

3. A composite material as claimed in claim 2 in which the composite material comprises less than 0.1% by weight by weight of aluminium expressed as  $Al_2O_3$ .

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4. A composite material as claimed in claim 1 in which the composite material is essentially free of aluminium. *what do you mean by this & how free!!*  
*Object can be residue than!!*

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5. A composite material as claimed in ~~any preceding claim~~ <sup>claim 1</sup> and comprising less than 1% by weight sodium expressed as  $Na_2O$ .

6. A composite material as claimed in claim 5 and comprising less than 0.5% by weight sodium expressed as  $Na_2O$ .

25 7. A composite material as claimed in claim 6 and comprising less than 0.1% by weight sodium expressed as  $Na_2O$ .

8. A composite material as claimed in ~~any preceding claim~~ <sup>claim 1</sup> and in which the composite material is essentially free of sodium.

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9. A composite material as claimed in ~~any preceding claim~~ <sup>claim 1</sup> and comprising less than 0.5% by weight boron expressed as  $B_2O_3$ .

10. A composite material as claimed in claim 9 and comprising less than 0.1% by weight boron expressed as  $B_2O_3$ .

- 5 11. A composite material as claimed in <sup>claim 1</sup> ~~any preceding claim~~ in which the alkaline earth silicate fibre is itself capable of use without excessive shrinkage at temperatures in excess of 1200°C.

- 10 12. A composite material as claimed in <sup>claim 1</sup> ~~any preceding claim~~ in which the material is obtainable by vacuum forming from a slurry containing the following ingredients (in weight %):-

Alkaline earth metal silicate fibre	70-85%
Colloidal silica (30% $SiO_2$ by weight)	3-25%
Organic binder	1-6%
Filler	11-20%

↑  
remove  
percentages

- 15 13. A composite material as claimed in claim 12 comprising:-

Alkaline earth metal silicate fibre	70-90%
Colloidal silica (30% $SiO_2$ by weight)	1-10%
Organic binder	1-6%
Filler	11-20%

- 20 14. A composite material as claimed in claim 13 comprising:-

Alkaline earth metal silicate fibre	77.3-87.2%
Colloidal silica (30% $SiO_2$ by weight)	1.2-8.2%
Organic binder	3.3-4.7%
Filler	12.8-18%

- 30 15. A composite material as claimed in <sup>claim 1</sup> ~~any of claims 1 to 11~~ in which the material is a paper comprising:-

Alkaline earth metal silicate fibre	90-95%
Organic binder	5-10%
Organic flocculants	<1%

16. A composite material as claimed in claim 15 in which the organic binder is an acrylic latex.

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5 17. A composite material as claimed in ~~any of claims 1 to 11~~ <sup>claim 1</sup> in which the material is a material obtainable by vacuum forming from a slurry comprising the ingredients:

Alkaline earth silicate fibre	60 parts by weight
Colloidal silica (30% by weight $\text{SiO}_2$ )	12 - 14 parts by weight
<u>Starch</u>	2.5 parts by weight

and in which the colloidal silica has a pH of less than 8.

What is total parts by wt.??

- 10 18. A composite material comprising 4-12% by weight colloidal silica, 3-6.5% starch, balance to 100% alkaline earth silicate fibre.
19. A composite material as claimed in claim 18 and comprising 4-9% by weight colloidal silica, 3.5-5% starch, balance to 100% alkaline earth silicate fibre.
- 15 20. A composite material as claimed in claim 18 comprising about 6% colloidal silica.

- 9 21. A composite material as claimed in ~~any of claims 1 to 11~~ <sup>claim 1</sup> in which the material is a material obtainable by vacuum forming from the ingredients:-

"White water" component	50-80% by volume of 30%-solids colloidal silica with 20-30% by volume <u>mainly water</u> ?
Alkaline earth metal silicate fibre component	0.5-4% by weight of solids to <u>white water</u> ?

- 20 and in which the colloidal silica has a pH of less than 8.

22. A composite material as claimed in <sup>17</sup>~~any of claims 1 to 11~~ <sup>claim 1</sup> in which the material is a material obtainable by vacuum forming from the ingredients:-

"White water"	90-100% by volume of 30% solids colloidal silica
component	with 10-0% by volume mains water
Alkaline earth metal	2-3% by weight of solids to white water
silicate fibre	component

and in which the colloidal silica has a pH of less than 8.

23. A composite material as claimed in claim 21 ~~or claim 22~~ and which comprises 15-30% by weight colloidal silica, balance fibre.

24. A composite material as claimed in claim 17 in which the fibre is present in amounts comprising 0.5-5% by weight of the water in the slurry.

25. A composite material as claimed in <sup>claim 1</sup>~~any of claims 1 to 11~~ in which the material is a material obtainable by vacuum forming from the ingredients

"White water"	65-100% by volume of 40% solids <u>low sodium</u>
component	content colloidal silica having a pH of less than
	10 with 35%-0% by volume <u>mains</u> water
Alkaline earth metal	2-3wt% by weight of solids to <u>white</u> water
silicate fibres	component

Add A1

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